

EMOTION AND
MOTIVATION

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This section deals with our inner experiences of emotion and motivation. Many nonpsychologists have trouble with the idea of researching these issues scientifically. A popular belief contends that our emotions and motivations just *happen*, that we don't have much control over them, and that they are part of our standard equipment from birth. However, psychologists have always been fascinated with the issues of where your emotions come from and how your feelings cause you to act as you do. Emotion and motivation are basic and powerful influences on behavior, and a great deal of research allows us to understand them better.

The first study in this section may surprise you in that it focuses on the sexual response studies begun by the famous research team of Masters and Johnson in the 1960s. It is included here because human sexual feelings and behaviors are strongly influenced by our emotions, which can also serve as powerful motivational forces. The second reading examines a famous and fascinating study about facial expressions of emotions and demonstrates that our facial expressions for basic emotions are the same for everyone in all cultures throughout the world. The third study in this section presents research about how *extreme* emotions, those that create stress, can affect your health. The fourth reading allows you to experience the process of one of the most, if not the most, famous experiments in the area of motivation: the original demonstration of a psychological event called *cognitive dissonance*.

Reading 21: A SEXUAL MOTIVATION . . .

Masters, W. H., & Johnson, V. E. (1966). *Human sexual response*. Boston: Little, Brown.

You may not immediately realize this, but human sexuality is very psychological. Many people might logically place the study of sexual behavior into the disciplines of biology or physiology, and it is true that these sciences certainly

connect to the topic in various ways and are the central focus of sexual behavior of most animals. For humans, however, sexual activity is as much a *psychological* process. Think about it: sexual attraction, sexual desire, and sexual functioning are all dependent in many ways upon psychology. If you doubt this, just consider a couple of obvious facts. You know that most people engage in sexual behavior for many reasons other than reproduction. Those reasons are usually psychological. Also, as far as we know, humans are the only species on Earth to suffer from sexual problems such as hypoactive (low) sexual desire, problems with orgasm, erectile dysfunction, premature ejaculation, vaginismus, and so on. These problems often have psychological causes.

Having said that, however, you should be aware at the outset of this discussion that the full expression of ourselves as sexual beings, as well as the successful treatment of sexual problems, depends on a clear and thorough understanding of our sexual functioning: the *physiology* of human sexual response. This is what Masters and Johnson set out to study.

Prior to the 1960s, the definitive works on the sexual behavior of humans were the large-scale surveys of Americans' sexual activities published by Alfred Kinsey in the late 1940s and early 1950s. The famous Kinsey Reports, *Sexual Behavior in the Human Male* (1948) and *Sexual Behavior in the Human Female* (1953), asked thousands of men and women about their sexual behavior and attitudes, including topics ranging from frequency of intercourse to masturbation habits to homosexual experiences. With the publication of these reports, suddenly humans had a measure against which to compare their own sexual lifestyles and make relative judgments of their personal sexual behaviors. The Kinsey Reports offered a rare glimpse into the sexuality of humans, and the publications are still cited today as a source of statistical information about sexual behavior. The importance of Kinsey's work notwithstanding, his research only provided information about what people say they do sexually. A conspicuous gap remained in our knowledge about what happens to us physically when we engage in sexual behavior and what people should do if they are experiencing some kind of sexual problem.

Enter Masters and Johnson. These are names that have become synonymous with human sexuality research and are recognized by millions throughout the world. As the 1960s began, the United States was launched into what has now become known as the "sexual revolution." The sweeping social changes that were taking place provided an opportunity for open and frank scientific exploration of our sexuality that would not have been possible previously. Until the 1960s, lingering Victorian messages that sexual behavior is something secretive, hidden, and certainly not a topic of discussion, much less study, precluded virtually all support, social and financial, for Masters and Johnson's project. But as men and women began to acknowledge more openly the fact that we are sexual beings, with sexual feelings and desires, the social climate became one that was ready not only to accept the research of Masters and Johnson but to demand it. Behavioral statistics were no longer enough. People were ready to learn about their physical responses to sexual stimulation.

It was within this social context that Masters and Johnson began to study human sexual response. Their early work culminated in the book that is the subject of this discussion. Although this work was carried out more than three decades ago, it continues to influence our knowledge of the physiology of sexual response.

THEORETICAL PROPOSITIONS

The most important proposition in Masters and Johnson's research was that to understand human sexuality we must study actual sexual behaviors as they occur in response to sexual stimulation, rather than simply record what people perceive or believe their sexual experiences to be.

Their objective in proposing this theory was a therapeutic one: to help people overcome sexual problems that they might be experiencing. Masters and Johnson expressed this goal as follows:

[The] fundamentals of human sexual behavior cannot be established until two questions are answered: What physical reactions develop as the human male and female respond to effective sexual stimulation? Why do men and women behave as they do when responding to effective sexual stimulation? If human sexual inadequacy ever is to be treated successfully, the medical and behavioral professions must provide answers to these basic questions. (p. 4)

Combined with this objective, Masters and Johnson also proposed that the only method by which such answers could be obtained was direct systematic observation and physiological measurements of men and women in all stages of sexual responding.

METHOD

Participants

As you might imagine, the first hurdle in a research project such as this is obtaining participants. The project required volunteers who would be willing to engage in sexual acts in a laboratory setting while being closely observed and monitored. Obviously, the researchers were concerned that such a requirement might create the impossibility of finding participants who would represent the general population. Another concern was that the strange and artificial environment of the research lab might cause participants who did volunteer for the study to be unable to respond in their usual ways.

During the early phases of their study, Masters and Johnson employed prostitutes as participants. This decision was based on their assumption that individuals from more average and typical lifestyles would refuse to participate. Prostitutes were studied extensively for nearly 2 years: 8 females and 3 males. The researchers described the contributions of these first 11 participants as being crucial to the development of the methods and research techniques used throughout the entire study.

These participants, however, did not constitute an appropriate group on which to base an extensive study of human sexual response. This was because

TABLE 21-1 Distribution of Participants by Age, Gender, and Educational Level

AGE	NUMBER OF MALES	NUMBER OF FEMALES	HIGH SCHOOL	COLLEGE	GRADUATE SCHOOL
18-20	2	0	2	0	0
21-30	182	120	86	132	84
31-40	137	111	72	98	78
41-50	27	42	18	29	22
51-60	23	19	15	15	12
61-70	8	14	7	11	4
71-80	3	4	3	3	1
81-90	0	2	0	2	0
Totals	382	312	203	290	201

(Adapted from pp. 13-15.)

their lifestyle and sexual experiences did not even remotely represent the population at large. Therefore, the researchers knew that any findings based on this participant group could not be credibly applied to people in general. It was necessary, therefore, to obtain a more representative sample of participants. Contrary to their earlier assumption, the researchers did not find this as difficult as they had anticipated.

Through their contacts in the academic, medical, and therapeutic communities in a large metropolitan area, Masters and Johnson were able to enlist a large group of volunteers from a wide range of socioeconomic and educational backgrounds. The age, gender, and educational demographics of the participants who were eventually chosen are summarized in Table 21-1. All volunteers were carefully interviewed to determine their reasons for participating and their ability to communicate on issues of sexual responsiveness. The prospective participants also agreed to a physical exam to ensure anatomical normalcy.

Procedures

To study in detail the physiological responses of the human body during sexual activity and stimulation, a wide variety of methods of measurement and observation were necessary. These included such standard measures of physiological response as pulse, blood pressure, and rate of respiration. In addition, specific sexual responses were to be observed and recorded. For this, the "sexual activity of study subjects included, at various times, manual and mechanical manipulation, natural coition [intercourse] with the female partner in supine, superior, or knee-chest position, and, for many female study subjects, artificial coition in the supine or knee-chest positions" (p. 21). What all that means is that sometimes participants were observed and measured while having intercourse in various positions, and other times they were observed and measured during masturbation either manually or with mechanical devices specially designed to allow for clear recording of response.

These special devices, designed by physicists, were, basically, clear plastic artificial penises that allowed for internal observations without distortion. These could be adjusted in size for the woman's comfort and were controlled completely by the woman for depth and rate of movement in the vagina throughout the response cycle.

PARTICIPANT ORIENTATION AND COMFORT

You can imagine that all these expectations, observations, and devices might create some real emotional difficulties for the participants, and Masters and Johnson were acutely aware of these potential difficulties. To help place participants at ease with the study's procedures, they ensured the following:

Sexual activity was first encouraged in privacy in the research quarters and then continued with the investigative team present until the study subjects were quite at ease in their artificial surroundings. No attempt was made to record reactions . . . until the study subjects felt secure in their surroundings and confident of their ability to perform. . . . This period of training established a sense of security in the integrity of the research interest and in the absolute anonymity embodied in the program. (pp. 22-23)

Some participants were involved in only one recording session, while others participated actively for several years. For the research included in the book that is the topic of discussion here, Masters and Johnson estimated that they were able to study 10,000 complete sexual response cycles with female observation outnumbering male observation by a ratio of 3 to 1. In their words, "a minimum of 7,500 complete cycles of sexual response have been experienced by female study participants cooperating in various aspect of the research program, as opposed to a minimum total of 2,500 male orgasmic (ejaculatory) experiences" (p. 15).

RESULTS

Masters and Johnson discovered a wealth of information about human sexual response, and some of their findings are summarized in the pages ahead. However, another aspect of their research to keep in mind is that much of what they found from their sample of participants is true of most people. Of course, some exceptions exist, but in general, everyone's basic physiological responses to sexual stimulation are similar. You must remember, though, as you read about their early findings, that Masters and Johnson's research did *not* address sexual attitudes, emotions, morals, values, preferences, orientations, or likes or dislikes. These matters clearly are *not* similar for everyone, and it is our individual variations in these issues that create the vast and wondrous diversity that exists in human sexuality. Let's look at some of Masters and Johnson's most influential findings.

The Sexual Response Cycle

After studying approximately 10,000 sexual events, Masters and Johnson found that human sexual response could be divided into four stages which,

TABLE 21-2 Masters and Johnson's Stages of the Sexual Response Cycle

STAGE	FEMALE RESPONSE SUMMARY	MALE RESPONSE SUMMARY
Excitement	First sign: vaginal lubrication. Clitoral glans becomes erect. Nipples become erect, breasts enlarge. Vagina increases in length, and inner two-thirds of vagina expands.	First sign: erection of penis. Time to erection varies (with person, age, alcohol/drug use, fatigue, stress, etc.). Skin of scrotum pulls up toward body, testes rise. Erection may be lost if distracted but usually regained readily.
Plateau	Outer one-third of vagina swells, reducing opening by up to 50%. Inner two-thirds of vagina continues to balloon or "tent." Clitoris retracts toward body and under hood. Lubrication decreases. Minor lips engorge with blood and darken in color, indicating orgasm is near. Muscle tension and blood pressure increase.	Full erection attained; not lost easily if distracted. Corona enlarges further. Cowper's gland secretes pre-ejaculate fluid. Testes elevate further, rotate, and enlarge, indicating orgasm is near. Muscle tension and blood pressure increase.
Orgasm	Begins with rhythmic contractions in pelvic area at intervals of 0.8 second, especially in muscles behind the lower vaginal walls. Uterus contracts rhythmically as well. Muscle tension increased throughout body. Duration recorded from 7.4 seconds to 104.6 seconds. Length does not equal perceived intensity.	Begins with pelvic contractions 0.8 second apart. Ejaculation, the expelling of semen, occurs in two phases: (1) emission (semen builds up in urethral bulb, producing sensation of ejaculatory inevitability); (2) expulsion (genital muscles contract, forcing semen out through urethra).
Resolution	Clitoris, uterus, vagina, nipples, etc., return to unaroused state in less than 1 minute. Clitoris often remains very sensitive to touch for 5 to 10 minutes. This process may take several hours if woman has not experienced an orgasm.	Approximately 50% loss of erection within 1 minute; more gradual return to fully unaroused state. Testes reduce in size and descend. Scrotum relaxes.

they termed the *human sexual response cycle*. These stages are excitement, plateau, orgasm, and resolution (Table 21-2). Although they acknowledge in their book that the stages were arbitrarily defined, these divisions made the discussion of sexual response easier and clearer. Today, human sexual response is rarely discussed in academic or professional settings without reference to these four stages.

Sexual Anatomy

One of the great contributions made by Masters and Johnson in their research on sexual response was the dispelling of sexual myths. And one area of widespread misunderstanding that the researchers attempted to correct relates to sexual anatomy—specifically, the penis and the vagina. Throughout history, one of the most common sexual concerns expressed by men has related to penis size. Masters and Johnson studied a lot of penises and could finally shed some

scientific light on these concerns. They called them "phallic fallacies." The two worries men have expressed are (a) larger penises are more effective in providing satisfying sexual stimulation for the woman and (b) their own penis is too small. Masters and Johnson demonstrated that both concerns are misguided by revealing actual average penis sizes found in their research and explaining the functioning of the penis and vagina during heterosexual intercourse.

The researchers found that the normal range for flaccid penile length in this study population was between 2.8 inches and 4.3 inches, with an average length of about 3 inches. For erect penises the average length ranged from about 5.5 inches to just under 7 inches, with an average of about 6 inches. These numbers were significantly smaller than the commonly held beliefs about what constitutes a large versus a small penis. But what was even more surprising was that when they measured the size of erect penises, the researchers found that a larger flaccid penis does not predict a larger erect penis. In fact, they discovered overall that smaller flaccid penises tend to enlarge more upon sexual excitement than do penises that are larger in their flaccid state. Looking at averages, a flaccid penis of 3 inches increased to a length of 6 inches, but a 4-inch flaccid penis only added about 2.5 inches to reach a length of 6.5 inches. To further illustrate this finding, Masters and Johnson reported the largest and smallest observed change from flaccid to erect state. One male participant was found to have a flaccid penile length of 2.8 inches. The increase that was observed in this participant upon erection was 3.3 inches, to an erect length of 6.1 inches. Another participant who was measured flaccid at 4 inches increased only 2.1 inches, for an identical erect length of 6.1 inches.

More important than all these measurements of penises is the notion that a woman's sexual enjoyment and satisfaction depend on penis size. Masters and Johnson's research, as explained in a section titled "Vagina Fallacies" found that idea to be totally without merit. In their careful observations using the artificial penis technique described earlier, they determined that the vagina is an extremely elastic structure capable of accommodating penises of varying size. "Full accommodation usually is accomplished with the first few thrusts of the penis regardless of penile size" (p. 194). Furthermore, they found that during the plateau stage of the response cycle (see Table 21-2), the walls of the vaginal opening swell to envelop a penis of virtually any size. Therefore, as the authors conclude, "It becomes obvious that penile size usually is a minor factor in sexual stimulation of the female partner" (p. 195).

Female and Male Differences in Sexual Response

Although Masters and Johnson demonstrated many similarities in the sexual response cycles of men and women, they also pointed out some important differences. Their most famous and most revolutionary finding concerned the orgasm and resolution stages of the cycle. Following orgasm, both men and women enter the resolution stage, when sexual tension decreases rapidly and sexual structures return to their unaroused states (this is also known as *detumescence*). Masters and Johnson found that during this time, a

man experiences a *refractory period*, during which he is physically incapable of experiencing another orgasm regardless of the type or amount of stimulation he receives. This refractory period may last from several minutes to several hours or even a day, and it tends to lengthen as a man ages.

Masters and Johnson found that many women do not appear to have a refractory period and with continued, effective stimulation are capable of experiencing one or more additional orgasms following the first, an experience referred to as *multiple orgasms*. The researchers reported that women, unlike men, are "capable of maintaining an orgasmic experience for a relatively long period of time" (p. 131).

While this multiorgasmic capacity was not news to many women, it was not widely known. Prior to Masters and Johnson's work, it was commonly believed that men had the greater orgasmic capabilities. Consequently, this finding, as well as many others in Masters and Johnson's research, had a far-reaching impact on cultural and societal attitudes about male and female sexuality. It should be noted here that although most women are physiologically capable of multiple orgasms, not all women seek or even desire them. Indeed, many women have never experienced multiple orgasms and are completely satisfied with their sexual lives. Also, many women who have had multiple orgasms find that they also are usually satisfied with a single orgasm. The important point is that individuals vary greatly in terms of what is physically and emotionally satisfying sexually. Masters and Johnson were attempting to address the full range of physiological possibilities.

CRITICISMS

Most of the criticisms of Masters and Johnson's early research focus either on the arbitrary nature of their four stages of sexual response or on the fact that they spent little time discussing the cognitive and emotional aspects of sexuality. However, Masters and Johnson addressed these criticisms in their early writings.

As mentioned previously, the authors were fully aware that their four sexual response phases were purely arbitrary but that the divisions were helpful in researching and explaining the complex process of sexual response in humans. Other researchers over the years have suggested different stage theories. For example, Helen Singer Kaplan (Kaplan, 1974) proposed a three-stage model that includes desire, vasocongestion (engorgement of the genitals), and muscle contractions (orgasm). These stages reflect Kaplan's belief that an analysis of sexual response should begin with sexual desire before any sexual stimulation begins, and she suggests that no distinction can or need be drawn between excitement and plateau. Her focus on the desire aspect of sexuality leads into the other main criticism of Masters and Johnson's original work: the lack of attention to psychological factors.

Masters and Johnson acknowledged that an examination of psychological and emotional factors was not the goal of the project. They did believe, however, that a complete understanding of the *physiological* side of sexual behavior was a necessary prerequisite for a satisfying and fulfilling sex life. And

they demonstrated this belief in subsequent books dealing with the psychological and emotional aspects of our sexuality.

Over the 30 years since Masters and Johnson's first book appeared, some research has questioned some of their findings as they apply to all humans. For example, research has demonstrated that some women may experience a refractory period during which time they are incapable of experiencing additional orgasms, and a small percentage of men may be capable of multiple orgasms with little or no refractory period between them. Also, although ejaculation was thought to be entirely the domain of men, recent research demonstrates that some women may, under some circumstances, ejaculate at orgasm (see Zaviacic, 2002, for a discussion of this research).

RECENT APPLICATIONS

It would be impossible to list here even a representative sample of the numerous articles and books published each year that refer substantively to Masters and Johnson's early work on human sexual response. These publications range from basic core texts in human sexuality (e.g., Hock, 2007; McNulty & Burnette, 2004) to very specific, cutting-edge articles in psychology and sexuality journals.

In addition, as you might imagine, Masters and Johnson's model was and continues to generate controversy. Probably the most lively debate today revolves around whether their four-phase model can be applied to both men and women, as the researchers suggested.

One study in this vein incorporated Masters and Johnson's pioneering work in designing, administering, and analyzing responses to a national survey of sexual satisfaction among nearly 1,000 women, ages 20 to 65 years, in heterosexual relationships (Bancroft et al., 2003). The goal of the study was to examine whether women's sexual problems may be viewed as similar to men's sexual problems and to what extent pharmacological treatments might be helpful for women, in the way that erectile disorder drugs (Viagra, Levitra, Cialis) have helped many men. The study found that problems with the physical side of sexual response (arousal, vaginal lubrication, orgasm) were *not* strongly related to sexual distress among the respondents: "The overall picture is that lack of emotional well-being and negative emotional feelings during sexual interaction with the partner are more important determinants of sexual distress than impairment of the more physiological aspects of female sexual response. Although we do not have directly comparable data for men, we can predict that the pattern would be different, with greater importance attached to genital response" (Bancroft et al., 2003, p. 202). In other words, women's most common sexual problems may be far too complex to be solved with just a "little pink pill."

Indeed, in 2000, a new approach to understanding female sexual problems was developed by a collaborative group of 12 women scientists, researchers, and clinicians who argued that, sexually, men and women are more different than they are similar and that Masters and Johnson's four-phase model is invalid in describing, explaining, or treating sexual problems in women (see Tiefer, 2001). This "new view of women's sexual problems" contends that "women's accounts do

not fit neatly into the Masters and Johnson model; for example, women generally do not separate 'desire' from 'arousal,' [and] women care less about physical than [about] subjective arousal" (Tiefer, 2001, p. 93). The researchers propose that Masters and Johnson's model which, for the most part, equates male and female sexual response, fails to take into account some important factors that are necessary to understand women's sexual problems. These include the context of the relationship in which the sexual responding is occurring and individual differences among women in their sexual response patterns. More specifically, they suggest that women's sexual difficulties require a classification system that takes into account cultural, political, and economic factors (e.g., lack of sexuality education or access to contraception); woman's partner and issues in the relationship (e.g., fear of abuse, imbalance of power, overall discord); psychological factors (e.g., past sexual trauma, depression, anxiety); and medical factors (e.g., hormonal imbalances, sexual transmitted infections, medication side effects).

Thanks in large part to the work of Masters and Johnson, our understanding of the physical processes involved in human sexual pleasure and response is quite advanced compared to a half century ago, but we still have great deal to learn. Undoubtedly, with Masters and Johnson's groundbreaking studies as a backdrop, research will continue and our insights into human sexual response will expand.

CONCLUSIONS

In 1971, Masters and Johnson were married. Over the following two decades they continued to work and publish as a team. In 1992, due to increasing differences between them about the direction of their research and retirement, the couple divorced and Johnson went into retirement. Masters continued as director of the Masters and Johnson Institute in St. Louis until his retirement in 1994. He died from complications of Parkinson's disease on February 11, 2001, at the age of 85.

You'll recall from the beginning of this discussion that the main goal of Masters and Johnson's research was to address problems of sexual inadequacy—to help people solve their sexual problems. Almost without question they have done that. Virtually all sex therapy, whether for erectile problems, orgasm difficulties, rapid ejaculation, inhibited arousal issues, or any other sexual problem rests on a basic foundation of Masters and Johnson's research. It is impossible to overestimate the contributions of Masters and Johnson to our understanding and study of human sexuality. An examination of any recent sexuality textbook will reveal more citations for and more space devoted to the work of Masters and Johnson than to any other researchers. But beyond this, William Masters and Virginia Johnson, over the decades following the publication of *Human Sexual Response* (which forms the basis of this reading) continued researching and applying their findings to help people attain sexual fulfillment. Four years after the publication *Human Sexual Response*, the released *Human Sexual Inadequacy* (1970), which applied their earlier research

directly to solutions for sexual problems. Their continuous attention to their chosen field is demonstrated by a list of their subsequent books:

- The Pleasure Bond* (1970); *Homosexuality in Perspective* (1979); *Human Sexuality* (1995); *Crisis: Heterosexual Behavior in the Age of AIDS* (1988); *Masters and Johnson on Sex and Human Loving* (1986); and *Heterosexuality* (1998).
- Bancroft, J., Loftus, J., & Long, J. (2003). Distress about sex: A national survey of women in heterosexual relationships. *Archives of Sexual Behavior*, 32, 193–208.
- Hock, R. R. (2007). *Human sexuality*. Upper Saddle River, NJ: Pearson Prentice Hall.
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- McAnulty, R. D., & Burnette, M. M. (2004). *Exploring human sexuality: Making healthy decisions*, 2nd ed. Boston: Pearson Allyn & Bacon.
- Tiefer, L. (2001). A new view of women's sexual problems: Why new? Why now? *Journal of Sex Research*, 38, 89–96.
- Zaviacic, Milan (2002). Female urethral expulsions evoked by local digital stimulation of the G-spot: Differences in the response patterns. *Journal of Sex Research*, 24, 311–18.

Reading 22: I CAN SEE IT ALL OVER YOUR FACE!

Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social Psychology*, 17, 124–129.

Think of something funny. What is the expression on your face? Now think of something in your past that made you sad. Did your face change? Chances are it did. Undoubtedly, you are aware that certain facial expressions coincide with specific emotions. And, most of the time, you can probably tell how people are feeling emotionally from the expressions on their faces. Now, consider this: Could you be equally successful in determining someone's emotional state based on facial expression if that person is from a different culture—say, Romania, Sumatra, or Mongolia? In other words, do you believe facial expressions of emotion are universal? Most people believe that they are, until they stop and consider how radically different other cultures are from their own. Think of the multitude of cultural differences in styles of dress, gestures, personal space, rules of etiquette, religious beliefs, attitudes, and so on. With all these differences influencing behavior, it would be rather amazing if any human characteristics, including emotional expressions, were identical across all cultures.

Paul Ekman is considered the leading researcher in the area of the facial expression of emotion. This article details his early research, which was designed to demonstrate the universality of these expressions. Although the authors acknowledged in their introduction that previous researchers had found some evidence that facial behaviors are determined by culturally variable learning, they argued that previous studies were poorly done and, in reality, expressions for basic emotions are equivalent in all cultures.

Several years prior to this study, Ekman and Friesen had conducted research in which they showed photographs of faces to college-educated people

in Argentina, Brazil, Chile, Japan, and the United States. All the participants from every country correctly identified the same facial expressions as corresponding to the same emotions regardless of the nationality of the person in the photo. The researchers presented their findings as evidence of the universality of emotional expressions. However, as Ekman and Friesen themselves pointed out, these findings were open to criticism because members of the cultures studied had all been exposed to international mass media (movies, magazines, television), which are full of facial expressions that might have been transmitted to all these countries. What was needed to prove the universality of emotional expression was to study a culture that had not been exposed to any of these influences. Imagine how difficult (perhaps impossible) it would be to find such a culture given today's mass media. Well, even in 1971 it wasn't easy.

Ekman and Friesen traveled to the southeast highlands of New Guinea to find participants for their study among the Fore people who still existed as an isolated Stone Age society. Many of the members of this group had experienced little or no contact with modern cultures. Therefore, they had not been exposed to emotional facial expressions other than those of their own people.

THEORETICAL PROPOSITIONS

The theory underlying Ekman and Friesen's study was that specific facial expressions corresponding to basic emotions are universal. Ekman and Friesen stated it quite simply:

The purpose of this paper was to test the hypothesis that members of a preliterate culture who had been selected to ensure maximum visual isolation from literate cultures will identify the same emotion concepts with the same faces as do members of literate Western and Eastern cultures. (p. 125)

METHOD

The most isolated subgroup of the Fore were those referred to as the South Fore. The individuals selected to participate in the study had seen no movies, did not speak English or Pidgin, had never worked for a Westerner, and had never lived in any of the Western settlements in the area. A total of 189 adults and 130 children were chosen to participate, out of a total South Fore population of about 11,000. For comparison, 23 adults were chosen who had experienced a great deal of contact with Western society through watching movies, living in the settlements, and attending missionary schools.

Through trial and error, the researchers found that the most effective method of asking the participants to identify emotions was to present them with three photographs of different facial expressions and to read a brief description of an emotion-producing scene or story that corresponded to one of the photographs. The participant could then simply point to the expression that best matched the story. The stories used were selected very carefully to be sure that each scene was related to only one emotion and that it was recognizable to the Fore people. Table 22-1 lists the six stories developed by Ekman